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04 18) 414 502

ARBORICULTURAL ASSESSMENT REPORT

At

Barangaroo South – Hickson Road Remediation

Prepared for

Lend Lease (Millers Point) Pty Limited

10th October 2017

Prepared by: Ross Jackson

Graduate Certificate in Arboriculture (AQF L 8)
Dip. Horticulture (Arboriculture – AQF L 5)
Certificate III in Horticulture (Arboriculture)
Certificate in Horticulture (Landscape)

Member of the Arboriculture Australia (MAA)
Member of the Australian Institute of Horticulture
Consulting Arborist Nos.1695

DISCLAIMER

The Client acknowledges that this Report, and any opinions, advice or recommendations expressed or given in it, are the information supplied by the Client and on the data inspections, measurements and analysis carried out or obtained by Jacksons Nature Works (JNW) and referred to in the Report. The Client should rely on The Report, and on its contents, only to that extent.

Care has been taken to obtain all information from reliable sources. All data has been verified as far as possible. However, Ross Jackson – Consulting Arborist can neither guarantee nor be responsible for the accuracy of information provided by others.

Unless stated otherwise:

- Information contained in this report covers only the trees examined and reflects the health and structure of the trees at the time of inspection. The documented, observations, results, recommendations and conclusions given may vary after the site visit due to environmental conditions.
- The inspection was limited to visual examination from the base of the subject tree without dissection, probing or coring; and
- There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject trees may not arise in the future.

Ross Jackson.

Consulting Arborist

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1. BACKGROUND and METHODOLOGY

- 1.1 The purpose of this Tree Report is to inform and accompany a removal application for Tree 45 at 36 Hickson Road, Barangaroo – The Site.
- 1.2 The report was commissioned by Lend Lease on behalf of Lend Lease, Millers Point to consider the development impacts on the tree located at the site, based on the proposed Hickson Road Remediation Works into the Site.
- 1.3 This report outlines the health and condition of the subject tree, the remaining life expectancy of the tree, identifies any visible defects or other problems, describes which trees require pruning, removal, retention or represent a potential hazard and comments on the impact on these trees in relation to the works proposed.
- 1.4 The Site is 36 Hickson Road, Barangaroo.
- 1.5 The tree was identified by ground level Visual Tree Assessment (VTA) ¹ only in the data collection, taken on 22nd June 2017. No aerial (climbing) was undertaken.
- 1.6 All site photographs were taken by the author at the site. All photographs were taken using a digital camera (Canon 7D) with no image enhancement either within the camera or on computer.
- 1.7 The subject tree was located on plans supplied. The tree has been plotted and can be found on Annexure B – Tree Location Plan.
- 1.8 The trees were identified and their genus species and common name used. The trees were identified by the use of data collected and compared to G Burnie, S Forrester et al (1997) **Botanica** Random House, Milsons Point, NSW, Australia.
- 1.9 DBH. The Trunk Diameter at Breast Height (1.4 metres above ground level) in centimetres was measured over bark using a metal tape which automatically converts to diameter and assumes a circular trunk cross section.
- 1.10 DRB. The trunk Diameter above Root Buttress in centimetres was measured over bark using a metal tape which automatically converts to diameter and assumes a circular trunk cross section.
- 1.11 Height. Estimated overall height in metres.
- 1.12 Spread. Measured with a metal tape measure and shown in metres.
- 1.13 Useful Life Expectancy (ULE)².
A systematic pre-development tree assessment procedure developed by Jeremy Barrell, Hampshire, England. It gives a length of time that the Arborist feels a particular tree can be retained with an acceptable level of risk based on the information available at the time of the inspection. SULE ratings are Long (retainable for 40 years or more with an acceptable level of risk), Medium, (retainable for 16 – 39 years), Short (retainable for 5 – 15 years) and Removal

¹ Mattheck, Dr. Clause & Breloer, Helge (1994) – Sixth Edition (2001) **The Body Language of Trees – A Handbook for Failure Analysis** The Stationery Office, London, England

² Barrell, Jeremy (1996, 2001) **Pre-development Tree Assessment** Proceedings of the International F

(tree requiring immediate removal due to imminent hazard or absolute unsuitability).

1.14 The Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) have been calculated in terms of AS 4970 – 2009 Protection of trees on development site Section 3.

1.15 To prepare this report we have reviewed the following documents:

- Tree Protection Plan – Option 2 – Ex Situ by Tree Wise Men, dated 22.2.2015, Rev F;
- Development Consent SSD 6617 - 2014;
- Arboricultural Impact Assessment by Tree Wise Men, dated February 2015 (TWM 2015); &
- Australian Standard AS 4970 – 2009 Protection of trees on development sites.

2. OBSERVATIONS as seen on the days of inspection (22.6.2017)

2.1 Our tree observations can be found in Annexure A.

2.2 The same tree numbering used in the report by TWM 2015, have been used in this report for ease of reference.

3. DISCUSSIONS

3.1 We have been commissioned by Lend Lease on behalf of Lend Lease, Millers Point, to examine the health and condition of Tree 45 located at 36 Hickson Road, Barangaroo.

It is proposed to apply for the removal of Tree 45 as part of the proposed extension of the Hickson Road Remediation Works into the forecourt area at 36 Hickson Road (development works).

3.2 We have examined these tree at 36 Hickson Road and can advise the following considerations for the development works:

1. Tree 45 *Ficus macrocarpa* shows good vitality and form, being located in a raised planter bed in the forecourt of The Bond – refer plate 2. This tree is required to be removed as part of proposed extension of the Hickson Road Remediation Works into the forecourt area. Remediation works include excavation of the soils and construction of an odour enclosure in this specific area of the tree. Removal is supported on the basis of replacement trees will be planted at the completion of remediation works.



Plate 2: Tree 45

3.3 The TWM 2014 described and detailed the likely tree impacts for Site remediation works for SSD 6617 – 2014, being the Remediation of Hickson Road portion of the EPA Declaration Area No. 21122.

Two options were investigated: Option 1 (In- Situ) and alternative Option 2 (Ex-Situ).

The option acted upon is Option 2 (Ex-Situ). This option recommended the removal of the following trees (as identified in the TWM 2015 report): Trees 13 – 24 and Trees 46, 47 and 49 are *Ficus microcarpa* var. “Hillii” (Hills Fig).

Tree 45 is now required to be removed as part of extension of the Hickson Road Remediation Works into the forecourt area at 36 Hickson Road.

The TWM 2015 report concluded the removal of the other Hickson Road street trees is on the basis of replacement with appropriately advanced trees of the same species at the completion of Option 2 works. It is noted that the EIS and approved DA SSD 6617 clarifies to commit to replacing removed trees with new street trees, or in accordance with any other street tree design approved by the relevant authority.

4. RECOMMENDATIONS

In consideration of the data collected recommendations are provided for the removal or retention of trees including specific tree protection measures required to reduce the anticipated impacts from the proposed construction on those trees proposed to be retained.

The report specifically recommends:

- a. The removal of Tree 45 to enable the Hickson Road Remediation works to be extended into a portion of the land at 36 Hickson Road;
- b. Approval to remove Tree 45 is required from the landowner and the relevant authority;

- c. Tree removal work shall be carried out by an experienced tree surgeon in accordance with NSW WorkCover Code of Practice for Amenity Tree Industry (1998);
- d. That the one (1) removed tree be replaced with appropriately advanced tree of the same species at the completion of Option 2 works, or in accordance with any other street tree design approved by the relevant authority; &
- e. The tree location plan can be found on Annexure B.

A handwritten signature in black ink, appearing to read 'Ross Jackson', enclosed within a rectangular box.

Ross Jackson M.A.A (Nos. 1695) & M.A.I.H.
Consulting Arborist
Graduate Certificate in Arboriculture – AQF Level 8 (Honours)
Diploma Horticulture (Arboriculture) – AQF Level 5
Certificate III in Horticulture
Certificate in Horticulture (Landscape – Honours)

Annexure A: Observations as seen on the day of inspection of trees

Tree No	Botanical Name	Age Class	Height – m	Spread - m	D.B.H (cm)	D.R.B (cm)	TPZ & SRZ Rad.m	Condition comments on trees as seen on site	ULE
45	<i>Ficus macrocarpa</i> (Moreton Bay Fig)	M	8	8	42	44	5.1, 2.3	G vitality. Located in raised planter bed in the Bond forecourt.	2

Terms used in Tree Survey & Report:

Age Class

(Y) – Young refers to a well-established but juvenile tree. Less than 1/3 life expectancy

(SM) – Semi-mature refers to a tree at growth stages between immaturity and full size. A tree has reached First Adult Form i.e. displays adult characteristics. 1/3 to 2/3 life expectancy

(M)- Mature refers to a full-size tree with some capacity for future growth. Older than 2/3 life expectancy

(OM) – Over-mature refers to a tree approaching decline or already declining. Older than 2/3 life expectancy and showing signs of irreversible decline.

Health refers to a tree's vigour, growth rate, disease and/or insects.

Vitality summarises observations about the health and structure of the tree on a scale of: **(G) Good, (F) Fair, (P) Poor, (P) Poor & (D) Dead.**

Good: Tree is generally healthy and free from obvious signs of structural weaknesses or significant effects of pests and diseases or infection;

Fair: Tree is generally vigorous although has some indication of being adversely affected by the early effects of disease or infection or environmental or mechanical damage. Appropriate tree maintenance can usually improve overall health and halt decline;

Poor: Tree in decline and is not likely to improve with reasonable maintenance practices or has a structural fault such as bark inclusion;

Dead: Tree no longer capable of sustained growth.

Deadwood (DW) – deadwood found in canopy as a percentage.

Over Head Power Lines (OHPL) – upper canopy pruned to accommodate power lines at a given height.

Height expressed in metres refers to estimated overall height of tree.

Spread expressed in metres refers to estimated spread of crown at the drip line.

(DBH) Diameter at Breast Height expressed in millimetres refers to the trunk diameter at 1.4 metres above ground level. Where there are multiple trunks the combined diameter has been calculated in terms of Appendix A – AS 4970 – 2009, shown in brackets.

(DRB) Diameter above Root Buttress expressed in millimetres refers to the trunk diameter above root buttress.

(TPZ) Tree Protection Zone & Structural Root Zone (SRZ) as defined by AS 4970 – 2009 Section 3

(ULE) The various ULE categories indicate the useful life anticipated for an individual tree or trees assessed as a group. Factors such as the location, age,

condition and vitality of the tree are significant to the determination of this rating. Other influences such as the tree's effect on better specimens and the economics of managing the tree successfully in its location are also relevant to ULE (Barrell 1993, 1995, 2001).

ULE RATING (UPDATED 1/4/01) BARRELL

1.Long ULE: Trees that appear to be retainable at the time of assessment for more than 40 years with an acceptable level of risk.	2.Medium ULE: Trees that appear to be retainable at the time of assessment for more than 15-40 years with an acceptable level of risk.	3.Short ULE: Trees that appear to be retainable at the time of assessment for more than 5-15 years with an acceptable level of risk.	4.Remove: Trees that should be removed within the next 5 years.	5.Small, young or regularly pruned: Trees that can be reliably moved or replaced.
(A) Structurally sound trees located in positions that can accommodate future growth	(A) Trees that may only live between 15 and 40 more years.	(A) Trees that may only live between 5 and 15 more years.	(A) Dead, dying, suppressed or declining trees because of disease or inhospitable conditions.	(A) Small trees less than 5 Metres in height.
(B) Trees that could be made suitable for retention in the long term by remedial tree care.	(B) Trees that could live for more than 40 years but may be removed for safety or nuisance reasons.	(B) Trees that could live for more than 15 years but may be removed for safety or nuisance reasons.	(B) Dangerous trees because of instability or recent loss of adjacent trees.	(B) Young trees less than 15 years old but over 5 metres in height.
(C) Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long term retention.	(C) Trees that could live for more than 40 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.	(C) Trees that could live for more than 15 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.	(C) Dangerous trees because of structural defects including cavities, decay, included bark, wounds or poor form.	(C) Formal hedges and trees intended for regular pruning to artificially control growth.
	(D) Trees that could be made suitable for retention in the medium term by remedial tree care.	(D) Trees that require substantial remedial tree care and are only suitable for retention in the short term.	(D) Damaged trees that are clearly not safe to retain.	
			(E) Trees that could live for more than 5 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.	
			(F) Trees that are damaging or may cause damage to existing structures within 5 years.	
			(G) Trees that will become dangerous after removal of other trees for the reasons given in (A) to (F).	
			(H) Trees in categories (A) to (G) that have a high wildlife habitat value and, with appropriate treatment, could be retained subject to regular review.	

Annexure B: Tree location plan

